



## **W<sup>3</sup>QLAS Activated Sludge Process Control Workshop**

**Announcing:** This Process Control Workshop is to be held at Lincoln Center in Port Angeles, Washington on March 21-22, 2010. Class hours will be from 8 am to 5 pm Monday through Tuesday.

**Sponsored by:** West Washington Water Quality Lab Analyst Section (W<sup>3</sup>QLAS) of PNCWA and Peninsula College.

**Instructors:** Chuck Zickafoose and Woodie Muirhead of Brown and Caldwell.

**Purpose:** To provide wastewater treatment process control through classroom instruction and hands-on experience with the principles of activated sludge process, process control techniques, monitoring equipment, and troubleshooting of the wastewater treatment process, biological nutrient removal, and selectors. Students will become proficient in interpreting lab results, troubleshooting the treatment process, predicting plant loading and the effects of changing WAS and RAS rates, identifying the role of microorganisms in the treatment process, and more.

**Opportunities:** Upon satisfactory completion of the Process Control Workshop each student will receive 1 credit hour (this equates to 1.6 CEU's) from Peninsula College. Participants must fill out a student enrollment form that will be handed out at the beginning of the class. Students are encouraged to bring or ship samples of their activated sludge to the Port Angeles WWTP, 1509 East Columbia Street, Port Angeles, WA 98362 (insure they are kept cool).

### **Course topics:**

- |                                                          |                                                    |
|----------------------------------------------------------|----------------------------------------------------|
| ✓ Principles of process control                          | ✓ Principles of activated sludge treatment process |
| ✓ F/M ratio, CRT, and plant loading                      | ✓ Troubleshooting the wastewater treatment process |
| ✓ Methods of monitoring the wastewater treatment process | ✓ Biological nutrient removal                      |
| ✓ Process indicators                                     | ✓ Selectors (anaerobic and anoxic)                 |



**Registration Period: Class fills up fast so register early!**

***Activated Sludge Process Control Workshop Registration Form***

**Mail registration and payment to:**

**West Washington Water Quality Lab Analyst Section  
c/o City of Port Angeles WWTP  
321 East Fifth St.  
Port Angeles, WA 98362**

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Organization: \_\_\_\_\_

Employer's Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

- ☐ \$300 – WEF/PNCWA Members Membership # \_\_\_\_\_ (\$150 Discount if taking Activated Sludge Process Control and Aquatic Microscopy--total of \$600 for both classes)
- ☐ \$400 – Non-member
- ☐ \$200 – Student Rate (Applicant must show proof of enrollment in a college program)
- ☐ I am enclosing a check made payable to **West WA Water Quality Lab Analyst Section**.
- ☐ Purchase orders are accepted. # \_\_\_\_\_

Signature: \_\_\_\_\_

Certification Level: \_\_\_\_\_ Certification Number: \_\_\_\_\_

**Class Size Limit:**

Due to the size of the facility, registration will be limited to the first 35 participants. Register early to ensure your spot. You may register by fax at 360-417-4841 with an approved purchase order. Call 360-417-4845 for additional information.

**Lodging:**

**Days Inn**

1510 East Front Street  
Port Angeles, WA 98362  
360-452-4015

**Special Room Rates available**

Rate: \$55.14 (w/tax) Single or Double

A block of rooms is reserved for the workshop. Ask for the PNCWA Process Control Workshop. The hotel is located on the left between Front and First Street just past McDonalds as you enter Port Angeles (westbound) on Highway 101.



## PNCWA Aquatic Microscopy Workshop

**Announcing:** The W<sup>3</sup>QLAS Aquatic Microscopy Workshop to be held in Port Angeles, Washington on March 23<sup>th</sup>-25<sup>th</sup>, 2011. Class hours will be from 8 am to 5 pm Wednesday through Friday. Directions will be emailed to each applicant.

**Sponsored by:** West Washington Water Quality Lab Analyst Section (W<sup>3</sup>QLAS) of PNCWA and Peninsula College.

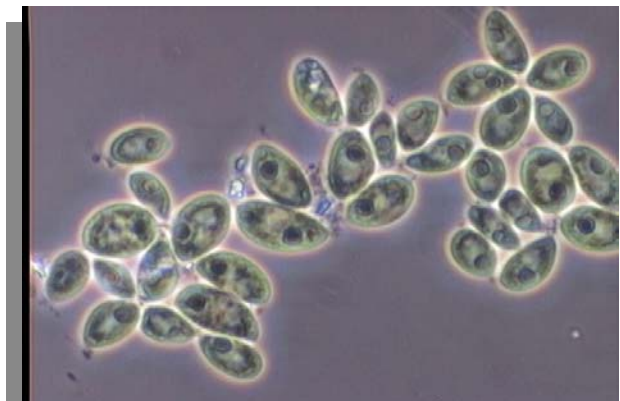
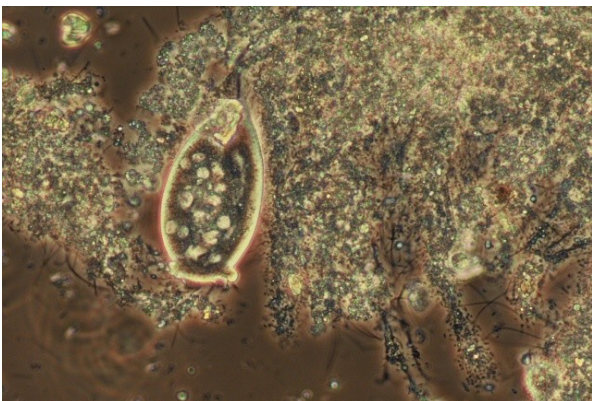
**Purpose:** Designed for water or wastewater technicians, laboratory, operators, and pretreatment professionals.. The class will demonstrate essential functions of the light, phase contrast, and epifluorescent microscopes; identification of protozoa, bacteria, and non-living items found in wastewater; and methods for ensuring optimal functioning of a wastewater system based upon microscopic findings. An introduction to FISH (Fluorescent in-situ Hybridization) theory and practice. Prerequisite: One year in a water or waste water laboratory or instructor's permission.

**Instructors:** Victor Santa Cruz, Biologist, Inland Empire Utilities Agency

**Opportunities:** Upon satisfactory completion of this Laboratory Training Workshop each student will receive 1.5-college credit hour (this equates to 2.4 CEU's). Participants must fill out a student enrollment form that will be handed out at the beginning of the class. Students are strongly encouraged to bring their phase contrast microscopes and samples.

### **Course topics:**

- ✓ Demonstrate the basic principles, components, care, and cleaning of the microscope
- ✓ Optimize microscope optics
- ✓ Use biological and differential stains
- ✓ Identify non-living items in microscopic examination
- ✓ Utilizing genetics for identifying filamentous bacteria by using FISH
- ✓ Recommend Control methods for filamentous bacteria
- ✓ Identify unknown filamentous bacteria utilizing morphology and genetics.
- ✓ Prepare microscope slides
- ✓ Perform basic microscope troubleshooting
- ✓ Identify common freshwater alga
- ✓ Identify species of filamentous bacteria
- ✓ Perform objective and subjective analysis of wastewater





### ***Aquatic Microscopy Workshop Registration Form***

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Employer's Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_  
E-mail Address: \_\_\_\_\_

- ☐ \$450.00 – WEF/PNCWA Members (\$150 Discount if taking Activated Sludge Process Control and Aquatic Microscopy-total of \$600 for both classes)  
Membership # \_\_\_\_\_
- ☐ \$605.00 – Non-member
- ☐ \$365.00 – Student Rate (Applicant must show proof of enrollment in a college program)

**Mail registration and payment to:**  
**West Washington Water Quality Lab Analyst Section of PNCWA**  
**c/o City of Port Angeles WWTP**  
**321 East Fifth St.**  
**Port Angeles, WA 98362**

- ☐ I am enclosing a check made payable to ***West Washington Water Quality Lab Analyst Section.***  
Purchase orders are accepted.

Signature: \_\_\_\_\_  
Operator Level and License number: \_\_\_\_\_

**Class Size Limit:** Due to the size of the facility, registration will be limited to the first 26 participants. Register early with the Lab Practices Committee to ensure your spot and insure you meet the class prerequisites. You may register by fax at 360-417-4841 with an approved purchase order. Call 360-417-4845 for additional information.

**Lodging:**

Days Inn  
510 East Front Street  
Port Angeles, WA 98362

Special Room Rates available  
Conference & Government Rates less 10%  
Single: \$55.14 (w/ tax) Phone # 360-452-4015

A block of rooms is reserved for the conference. Ask for the PNCWA Laboratory Analysis Workshop. The hotel is located on the left between Front and First Street just past McDonalds as you enter Port Angeles on Highway 101.